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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,821	01/22/2002	James J. Croft III	T9573.NP	9519
7590		01/04/2005	EXAMINER	
Clifton W. Thompson		HARVEY, DIONNE		
THORPE, NORTH & WESTERN, L.L.P.		ART UNIT		
P.O. Box 1219		PAPER NUMBER		
Sandy, UT 84091-1219		2643		

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,821

Applicant(s)

CROFT ET AL

Examiner

Dionne N Harvey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-54, 59-66, 77-80 and 84-87 is/are allowed.
- 6) ☒ Claim(s) 55-57, 67-76 and 81-83 is/are rejected.
- 7) ☒ Claim(s) 58 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/02 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/02; 11/02; 1/04; 8/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claims **27** and **30** are objected to because of the following informalities: claim 27 refers to itself in the claim preamble; claim 30 refers to itself in the claim preamble.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims **55, 56, 67-76 and 81-83** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Winey (3,919,499) in view of Winey (3,674,946)**.

Regarding Claim 55, shown in figure 10, Winey teaches a single ended magnetic transducer comprising at least one diaphragm (13) with a first and second surface side; including a conductive surface area (16,16.1,16.2); and said diaphragm including a predetermined active region (column 4, lines 41-47); a high energy magnetic structure (column 4, lines 9-12); and a mounting structure (11, shown in figure 3) for holding the diaphragm in a predetermined state of tension (see column 4, lines 50-54) at a predetermined distance from the high energy magnetic structure (column 6, lines 4-7, lines 40-53). Winey '499 does not clearly teach that the diaphragm is constructed of polyethylenenaphthalate materials.

In column 36, lines 29-33, Winey '946 teaches that the diaphragm is a single ended transducer and may be constructed of polyethylenenaphthalate materials. It would have been obvious for one of ordinary skill in the art at the time of the invention to construct the diaphragm of Winey '499 from saran, MYLAR, polyethylenenaphthalate materials or extrusions thereof as any of these materials are non-conductive and easily vibratable.

Regarding claim 56, Winey '499 teaches an adhesive for bonding said conductive surface areas (16) to the diaphragm. Winey does not specifically teach that the adhesive is polyurethane. However, the Examiner takes Official Notice that it would have been obvious for one of ordinary skill in the art at the time of the invention to use any variety of adhesives including polyurethane, rubber/silicone rubber, or other viscoelastic adhesives, since all of these adhesives have a relatively broad adaptability to materials.

Regarding claim 67, the combination of Winey '499 and Winey '946, teaches a method for reducing distortion in a single-ended planar-magnetic transducer including a primary magnetic structure (15) and a mounting support structure (11) and a vibratable diaphragm (13) including a peripheral boundary (shown in figure 4 where non-active portion of diaphragm-13 is connected to the top portion of support-11) and conductive regions (16, 16.1) with said peripheral boundary; said method including the steps of: i.) attaching the vibratable diaphragm (13, 13.1) to the mounting support (11) structure such that it is mounted at predetermined distance from said primary magnetic structure (see column 4, lines 36-40) and held in a state of predetermined tension (see column 4,

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lines 47-49), ii.) applying an adhesive material along at least a portion of the periphery of the vibratable diaphragm. Winey '499 does not specifically teach that the adhesive is a long term viscous material. However, the Examiner takes Official Notice that it would have been obvious for one of ordinary skill in the art at the time of the invention to use any variety of adhesives including polyurethane, rubber/silicone rubber, or other viscoelastic adhesives, since all of these adhesives have a relatively broad adaptability to materials.

Regarding claim 68, Winey does not specifically teach that the viscous material is a solvent based polyurethane compound. However, it would have been obvious for one of ordinary skill in the art at the time of the invention to use any variety of adhesives including polyurethane, rubber/silicone rubber, or other viscoelastic adhesives, since all of these adhesives have a relatively broad adaptability to materials.

Regarding claims 69 and 70, Winey teaches that the adhesive material is applied to the diaphragm, and in column 36, lines 29-33, Winey '946 teaches that the diaphragm may be constructed of polyethylenenaphthalate materials.

Regarding claim 71, the combination of Winey '499 and Winey '946, teaches a method for reducing distortion in a single-ended planar-magnetic transducer including a primary magnetic structure with multiple rows of magnets (15, see '499) and a mounting support structure (11) and a vibratable diaphragm (13) including a peripheral boundary (see figure 2) and a conductive region (16,16.1) within said peripheral boundary; said method including the steps of; i.) attaching the vibratable diaphragm to the mounting support structure such that it is mounted at predetermined distancing from said primary

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magnetic structure and held in a state of predetermined tension(see column 4, lines 36-40 ; also see column 4, lines 47-49); ii.) attaching at least one electrically conductive element (16,16.1) with acoustically transparent areas such that said electrically conductive element has at least a surface area placed between at least two rows of said multiple rows of magnets to improve linearity of the magnetic field above the magnets.

The combination of Winey '499 and Winey '946 fails to clearly teach that the at least one electrically conductive element is a non-magnetic sheet. However, the Examiner takes Official Notice that conductive elements in the form of a sheet, or strip i.e., flattened, are well known in the art and it would have been obvious to substitute the strip-form conductor for the annular wire conductor of Winey'499/'946, for the purpose of actuating the film diaphragm of the speaker system. **See cited reference, Adachi U.S. 5,003,610.**

Regarding claim 71, Winey '499 teaches that the electrically conductive element is made of copper.

Regarding claims 73 and 76, shown in figure 10, Winey teaches the claimed method comprising: a planar magnetic structure (15,15.1,15.2) and vibratable diaphragm (13,13.1,13.2) including an active region (column 4, lines 41-47), a conductive area (16,16.1,16.2) within the active region; the diaphragm being mounted to a support structure (11) and held in a predetermined state of tension (see column 4, lines 50-54) ; the method including: a high energy magnet; and the gap between the diaphragm and magnetic structure being less than 1 millimeter (see column 6, lines 40-55, wherein Winey teaches that the gap may be equal to 0.020 inches OR 0.508

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millimeters).

Winey '499 does not clearly teach that the diaphragm is constructed of a thin film material. In column 36, lines 29-33, Winey '946 teaches that the diaphragm is a single ended transducer and may be constructed of film materials such as saran, MYLAR, polyethylenenaphthalate materials. It would have been obvious for one of ordinary skill in the art at the time of the invention to construct the diaphragm of Winey '499 from a thin film such as saran, MYLAR, polyethylenenaphthalate materials or extrusions thereof as any of these materials are non-conductive and easily vibratable.

Winey '499 does not clearly teach that the high energy magnet may be neodymium. However, it would have been obvious for one of ordinary skill in the art at the time of the invention to use any variety of high energy magnets such as neodymium, as this particular magnet has a higher flux and is lighter in weight.

Regarding claims 74 and 75, Winey '499 teaches that the gap between the diaphragm and magnetic structure may vary from 1.016 millimeters to 0.508 millimeters. Winey does not restrict to the distance only being within these two values, and therefore it would have been obvious, as evidenced by the claims, for one of ordinary skill in the art at the time of the invention to decrease or increase the gap, depending on the type of magnet used and the desired resonant frequency for the system.

Regarding claim 81, the combination of Winey '499 and Winey '946 teaches the claimed method comprising: a vibratable film diaphragm (13,13.1,13.2); a conductive area (16,16.1,16.2); a primary magnetic structure (15,15.1,15.2); and support (11); and the thin film diaphragm being mounted to a support structure (11) and held in a

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predetermined state of tension (see column 4, lines 50-54) and having a predetermined gap from the primary magnetic structure.

Winey '499 and Winey '946 do not clearly teach that the high energy magnet may be neodymium. However, it would have been obvious for one of ordinary skill in the art at the time of the invention to use any variety of high energy magnets such as neodymium, as this particular magnet has a higher flux and is lighter in weight.

Regarding claim 82, In column 36, lines 29-33, Winey '946 teaches that the diaphragm is a single ended transducer and may be constructed of polyethylenenaphthalate materials. It would have been obvious for one of ordinary skill in the art at the time of the invention to construct the diaphragm of Winey '499 from saran, MYLAR, polyethylenenaphthalate materials or extrusions thereof as any of these materials are non-conductive and easily vibratable.

Regarding claim 83, Winey '499 teaches an adhesive for bonding said conductive surface areas (16) to the diaphragm. Winey does not specifically teach that the adhesive is polyurethane. It would have been obvious for one of ordinary skill in the art at the time of the invention to use any variety of adhesives including polyurethane, rubber/silicone rubber, or other viscoelastic adhesives, as all of these have a relatively broad adaptability to materials.

2. Claim **57** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Winey (3,919,499)**.

Regarding Claim 57, shown in figure 10, Winey teaches a planar magnetic

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transducer comprising at least one diaphragm (13) with a first and second surface side; including a conductive surface area (16,16.1,16.2); and said diaphragm including a predetermined active region (column 4, lines 41-47); a high energy magnetic structure (column 4, lines 9-12) configured to drive the diaphragm as a single-ended transducer; and a mounting structure (see element 11 which is shown in figure 3) for holding the diaphragm in a predetermined state of tension (see column 4, lines 50-54) at a predetermined distance from the high energy magnetic structure (column 6, lines 4-7, lines 40-53).

Winey does not specifically teach that the adhesive is polyurethane. However, it would have been obvious for one of ordinary skill in the art at the time of the invention to use any variety of adhesives including polyurethane, rubber/silicone rubber, or other viscoelastic adhesives, as all of these have a relatively broad adaptability to materials.

Allowable Subject Matter

3. Claims 1-54, 59-66, 77-80 and 84-87 are allowed.
4. Claim 58 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Adachi (US 5,003,610) teaches a sheet conductor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne N Harvey whose telephone number is 703-305-1111. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Harvey


GEORGE ENG
PRIMARY EXAMINER